

Amendments to the Claims

Per 37 CFR §1.173(b), the following includes the entire text of each claim being changed within this amendment paper and each claim being added by this amendment paper and, pursuant to 37 CFR §1.173(d), the changes are shown by brackets and underling relative to the original patent specification.

[1. A method for handling masa within a food processing system having a pair of aligned, opposed separator conveyors having facing surfaces, the longitudinal ends of the separator conveyors positioned adjacent to a nozzle connected to a masa producing device, the food processing system further having at least two masa hoppers, the masa hoppers and the separator conveyors connected by at least two endless belt feed conveyors having upper surfaces moving in the same direction, the feed conveyors positioned in an upstream and downstream relationship relative to each other, at least one feed conveyor positioned adjacent to the other longitudinal ends of the separator conveyors, each masa hopper having an associated sensor for sensing, the level of mass and an opening positioned below a diverter gate located between the feed conveyors, each diverter gate connected to an associated mechanism and pivotable between an open position, where the masa is guided from the upstream feed conveyor to the downstream conveyor, and a closed position, where the masa is guided into the masa hopper, each masa hopper located adjacent to a pair of aligned, opposed sheeter rollers, the sheeter rollers located adjacent to a masa hopper having side walls and a bottom wall defining a slot, the masa hopper also having at least one shaft above the bottom wall, each shaft having projections, the method comprising the steps of:

moving the facing surfaces of the separator conveyors at equal speed away from the nozzle;

feeding a generally continuous masa stream through the nozzle such that the masa stream contacts at least one of the facing surfaces of the separator conveyors and is guided between the facing surfaces of the separator conveyors;

gripping the masa stream between both facing surfaces of the separator conveyors pulling the masa stream such that the masa stream is separated into masa logs;

feeding the mass logs onto the upstream end of a feed conveyor; moving the masa logs from the separator conveyors along the upper surfaces of the feed conveyors;

sensing the level of masa within an associated masa hopper;

causing a signal to change its state when the level of masa within the masa hopper is below a predetermined level;

selectively opening and closing the diverter gate to control the flow of masa logs to the masa hopper in response to said change in signal;

placing the masa logs through the opening of one of the masa hoppers;

feeding the masa logs to at least one shaft within the masa hopper; rotating the shaft;

moving gas bubbles from the masa with the projections on at least one shaft; and

forcing the masa through the slot, toward the sheeter rollers, with the projections on at least one shaft.]

[2. The method as defined by claim 1, wherein the method further comprises the steps of;

arranging the facing surfaces of the separator conveyors to curve toward each other such that a cradle is formed to securely grip the masa.]

[3. The method as defined by claim 1, wherein the method further comprises the step of;

adjusting the speed of the facing surfaces of the separator conveyors to change the length of the masa logs.]

[4. The method as defined in claim 1, wherein the mechanism is a pneumatic cylinder connected to a controller, the method further comprising;

programming the controller to compare said signal to a predetermined value, selectively commanding the operation of the pneumatic cylinder to control said selective opening and closing of the diverter gate.]

[5. The method as defined in claim 1, wherein said feeding is accomplished by gravity.]

[6. The method as defined in claim 1, wherein said rotating is accomplished by an A/C motor.]

[7. The method as defined in claim 1, wherein the masa hopper also has a pair of opposed, horizontally, aligned primary rollers between the slot and the sheeter

rollers, the primary rollers each having a generally cylindrical surface and two ends, the method further comprising the steps of;

rotating the primary rollers;
drawing the masa between the primary rollers;
compressing the masa into a generally uniform curtain; and
feeding said uniform curtain into the sheeter rollers.]

[8. The method as defined in claim 7, wherein the masa hopper also has two endcaps, each endcap mounted around the ends of the primary rollers, the method further comprising the step of;

preventing the generally horizontal movement of the masa past the ends of the primary rollers.]

[9. The method as defined in claim 7, wherein there is a scrapper for each primary roller, each scrapper having a blade pivotally mounted and biased to longitudinally ride on the lower surface of its associated primary roller, the method further comprising the step of:

separating masa from the lower surface of each of the primary rollers.]

[10. A method for separating a stream of masa utilizing a pair of aligned, opposed separator conveyors having facing surfaces, the longitudinal ends of the separator conveyors positioned adjacent to a nozzle connected to a masa producing device, the method of separating the masa stream comprising the steps of:

moving the facing surfaces of the separator conveyors at equal speed away from the nozzle;

feeding a generally continuous masa stream through the nozzle such that the masa contacts at least one of the facing surfaces of the separator conveyors and is guided between the facing surfaces of the separator conveyors; and

gripping the masa stream between both facing surfaces of the separator conveyors, pulling the masa stream such that the masa stream is separated into masa logs.]

[11. The method as defined by claim 10, wherein the method further comprises the step of:

arranging the facing surfaces of the separator conveyors to curve toward each other such that a cradle is formed to securely grip the masa.]

[12. The method as defined by claim 11, wherein the method further comprises the step of:

adjusting the speed of the facing surfaces of the separator conveyors to change the length of the masa logs.]

[13. A method of feeding masa to masa hopper within a food processing system, the food processing system further having a masa producing device and at least two masa hoppers, the masa hoppers and the masa producing device connected by at least two endless belt feed conveyors having upper surfaces moving in the same direction, the feed conveyors positioned in an upstream and downstream relationship

relative to each other, each masa hopper having an associated sensor for sensing the level of masa and an opening positioned below a diverter gate positioned between the feed conveyors, each diverter gate connected to an associated mechanism and pivotable between an open position, where the masa is guided from the upstream feed conveyor to the downstream conveyor, and a closed position, where the masa is guided into the masa hopper, the method comprising the steps of:

moving masa logs, previously separated from a stream of masa produced from the masa producing device, along the upper surfaces of the feed conveyors;

sensing the level of masa within an associated masa hopper;

causing a signal to change its state when the level of masa within the masa hopper is below a predetermined level; and

selectively opening and closing the diverter gate to control the flow of masa logs to the masa hopper in response to said change in signal.]

[14. The method of feeding masa as defined in claim 13, wherein the mechanism is a pneumatic cylinder connected to a controller, the method further comprising the steps of:

programming the controller to compare said signal to a predetermined value; and

selectively commanding the operation of the pneumatic cylinder to control said selective opening and closing of the diverter gate.]

[15. A method for feeding masa to a pair of aligned, opposed sheeter rollers, the sheeter rollers located adjacent to a masa hopper having an opening for receiving

masa and side walls and a bottom wall defining a slot, the masa hopper also having at least one shaft above the bottom wall, each shaft having projections, the method comprising the steps of:

placing the masa through the opening in the masa hopper;

feeding the masa to at least one shaft;

rotating the shaft;

removing gas bubbles from the masa with the projections on at least one shaft;

and

forcing the masa through the slot, toward the sheeter rollers, with the projections on at least one shaft.]

[16. The method for feeding masa as defined in claim 15, wherein said feeding is accomplished by gravity.]

[17. The method for feeding masa as defined in claim 15, wherein said rotating is accomplished by a motor.]

[18. The method for feeding masa as defined in claim 17, wherein there is a scrapper for each primary roller, each scrapper having a blade pivotally mounted and biased to longitudinally ride on the lower surface of its associated primary roller, the method further comprising the steps of:

separating masa from the lower surface of each of the primary rollers.

[19. The method for feeding masa as defined in claim 15, wherein the masa hopper also has a pair of opposed, horizontally, aligned primary rollers between the slot and the sheeter rollers, the primary rollers each having a generally cylindrical surface and two ends, the method further comprising the steps of:

- rotating the primary rollers;
- drawing the masa between the primary rollers;
- compressing the masa into a generally uniform curtain; and
- feeding said uniform curtain into the sheeter rollers.]

[20. The method for feeding masa as defined in claim 19, wherein the masa hopper also has two endcaps, each endcap mounted around the ends of the primary rollers, the method further comprising the step of:

- preventing the movement of the masa past the ends of the primary rollers.]

38. (New) A method for feeding masa to a pair of aligned, opposed sheeter rollers, the sheeter rollers located adjacent to a masa hopper having an opening for receiving masa and a slot for dispensing masa, the masa hopper also having at least one shaft above the slot, each shaft having a projection, the method comprising the steps of:

placing the masa through the opening in the masa hopper;
feeding the masa to at least one shaft; and
forcing the masa through the slot, toward the sheeter rollers, with the projection on at least one shaft.

39. (New) The method for feeding masa defined in Claim 38 comprising the further step of:

removing gas bubbles from the masa with the projection on at least one shaft.

40. (New) The method for feeding masa as defined in Claim 38, wherein said feeding is accomplished by gravity.

41. (New) The method for feeding masa as defined in Claim 38, wherein said forcing is accomplished by rotating the shaft with a motor.

42. (New) The method for feeding masa as defined in claim 38, wherein the masa hopper also has a pair of opposed, horizontally aligned, primary rollers between the slot and the sheeter rollers, the primary rollers each having a generally cylindrical surface and two ends, the method further comprising the steps of:

rotating the primary rollers;
drawing the masa between the primary rollers;
compressing the masa into a generally uniform curtain; and
feeding said uniform curtain into the sheeter rollers.

43. (New) The method for feeding masa defined in Claim 42, wherein there is a scraper for each primary roller, each scraper having a blade pivotally mounted and biased to longitudinally ride on the lower surface of its associated primary roller, the method further comprising the step of:

separating masa from the lower surface of each of the primary rollers.

44. (New) The method for feeding masa as defined in claim 42, wherein the masa hopper also has two endcaps, each endcap mounted around the ends of the primary rollers, the method further comprising the step of:

preventing movement of the masa past the ends of the primary rollers.

45. (New) A method for feeding masa to a pair of aligned, opposed sheeter rollers, the sheeter rollers located adjacent to a masa hopper having an opening for receiving masa and a slot for dispensing masa, the masa hopper also having at least one shaft above the slot, each shaft having a projection, the method comprising the steps of:

placing the masa through the opening in the masa hopper;
feeding the masa to at least one shaft; and
removing gas bubbles from the masa with the projection on at least one shaft.

46. (New) The method for feeding masa defined in Claim 45 comprising the further step of:

forcing the masa through the slot, toward the sheeter rollers, with the projection on at least one shaft.

47. (New) The method for feeding masa as defined in Claim 45, wherein said feeding is accomplished by gravity,

48. (New) The method for feeding masa as defined in Claim 45, wherein said removing is accomplished by rotating the shaft with a motor.

49. (New) The method for feeding masa as defined in claim 45, wherein the masa hopper also has a pair of opposed, horizontally aligned, primary rollers between the slot and the sheeter rollers, the primary rollers each having a generally cylindrical surface and two ends, the method further comprising the steps of:

rotating the primary rollers;

drawing the masa between the primary rollers;

compressing the masa into a generally uniform curtain; and

feeding said uniform curtain into the sheeter rollers.

50. (New) The method for feeding masa defined in Claim 49, wherein there is a scraper for each primary roller, each scraper having a blade pivotally mounted and

biased to longitudinally ride on the lower surface of its associated primary roller, the method further comprising the step of:

separating masa from the lower surface of each of the primary rollers.

51. (New) The method for feeding masa as defined in claim 49, wherein the masa hopper also has two endcaps, each endcap mounted around the ends of the primary rollers, the method further comprising the step of:

preventing movement of the masa past the ends of the primary rollers.

52. (New) A method for feeding masa to a pair of aligned, opposed sheeter rollers, the sheeter rollers located adjacent to a masa hopper having an opening for receiving masa and a slot for dispensing masa, the masa hopper also having at least one shaft above the slot, each shaft having a projection, the method comprising the steps of:

placing the masa through the opening in the masa hopper;

feeding the masa to at least one shaft;

removing gas bubbles from the masa with the projection on at least one shaft;

and

forcing the masa through the slot, toward the sheeter rollers, with the projection on at least one shaft.

53. (New) The method for feeding masa as defined in Claim 52, wherein said feeding is accomplished by gravity.

54. (New) The method for feeding masa as defined in Claim 52, wherein said forcing is accomplished by rotating the shaft with a motor.

55. (New) The method for feeding masa as defined in claim 52, wherein the masa hopper also has a pair of opposed, horizontally aligned, primary rollers between the slot and the sheeter rollers, the primary rollers each having a generally cylindrical surface and two ends, the method further comprising the steps of:

rotating the primary rollers;

drawing the masa between the primary rollers;

compressing the masa into a generally uniform curtain; and

feeding said uniform curtain into the sheeter rollers.

56. (New) The method for feeding masa defined in Claim 55, wherein there is a scraper for each primary roller, each scraper having a blade pivotally mounted and biased to longitudinally ride on the lower surface of its associated primary roller, the method further comprising the step of:

separating masa from the lower surface of each of the primary rollers.

57. (New) The method for feeding masa as defined in claim 55, wherein the masa hopper also has two endcaps, each endcap mounted around the ends of the primary rollers, the method further comprising the step of:

preventing movement of the masa past the ends of the primary rollers.

58. (New) A method for feeding masa to a pair of aligned, opposed sheeter rollers, the sheeter rollers located adjacent to a masa hopper for receiving masa and an opening at a bottom end of the hopper for dispensing masa, the masa hopper also having at least one shaft above the opening, each shaft having a projection, the method comprising the steps of:

placing the masa into the masa hopper;
feeding the masa to at least one shaft; and
moving the masa out of the opening of the hopper, toward the sheeter rollers, with the projection on at least one shaft.

59. (New) The method for feeding masa as defined in Claim 58, wherein said feeding is accomplished by gravity.

60. (New) The method for feeding masa as defined in Claim 58, wherein said moving is accomplished by rotating the shaft with a motor.

61. (New) The method for feeding masa as defined in claim 58, wherein the masa hopper also has a pair of opposed, horizontally aligned, primary rollers between the opening and the sheeter rollers, the primary rollers each having a generally cylindrical surface and two ends, the method further comprising the steps of:

rotating the primary rollers;
drawing the masa between the primary rollers;
compressing the masa into a generally uniform curtain; and
feeding said uniform curtain into the sheeter rollers.

62. (New) The method for feeding masa defined in Claim 61, wherein there is a scraper for each primary roller, each scraper having a blade pivotally mounted and biased to longitudinally ride on the lower surface of its associated primary roller, the method further comprising the step of:

separating masa from the lower surface of each of the primary rollers,

63. (New) The method for feeding masa as defined in claim 61, wherein the masa hopper also has two endcaps, each endcap mounted around the ends of the primary rollers, the method further comprising the step of:

preventing movement of the masa past the ends of the primary rollers.